Elliot Epstein

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EDUCATION

Stanford University — **Stanford, California**
Ph.D. in Computational and Mathematical Engineering — Jul. 2022 – Jun. 2025
Master of Science in Computational and Mathematical Engineering (GPA: 4.18/4.30) — Sep. 2021 – Jun. 2024

- Coursework: Numerical Linear Algebra, Reinforcement Learning, Natural Language Processing, Optimization, Discrete Mathematics and Algorithms, Numerical and Theoretical PDEs, Stochastic Methods, Computer Systems
- Anticipated Coursework: Deep Generative Models, Decision Making under Uncertainty, Data Mining, Parallel Computing, Bayesian Statistics

University of Oxford — **Oxford, United Kingdom**
Master of Science in Mathematical and Computational Finance — Sep. 2020 – Jul. 2021

KTH Royal Institute of Technology — **Stockholm, Sweden**
Bachelor of Science in Engineering Physics (GPA: 4.94/5.00) — Aug. 2017 – Aug. 2020

ETH Zurich — **Zurich, Switzerland**
Exchange Student, Department of Mathematics — Sep. 2019 – Aug. 2020

- Thesis: "A Review of the Article *Gradient Descent Provably Optimizes Over-parametrized Neural Networks*"

Zhejiang University — **Hangzhou, China**
Summer Project in Machine Learning — Jun. 2019 – Jul. 2019

- Project title: "Semantic Image Segmentation Based on Deep Learning"

WORK EXPERIENCE

Google — **Sunnyvale, California**
Software Engineering Intern — Jun. 2023 – Sep. 2023

- Worked on an LLM based chatbot for enterprise solutions

Stanford University — **Stanford, California**
Research Assistant — Sep. 2022 – Apr. 2023

- Long sequence modeling with Prof. Christopher Re in the Stanford AI Lab

Research Assistant — Apr. 2022 – Sep. 2022

- Machine learning to solve PDEs in Prof. Eric Darve's lab

EDF Trading — **London, United Kingdom**
Intern, Quant and Data Group — Apr. 2021 – Aug. 2021

- Developed a model in Python to predict the direction of the next trade of day ahead gas futures with over 70 percent accuracy using LOB data and an ensemble of LSTM networks trained on multiple GPUs in the cloud
- Built a web application to display real time predictions from neural network and random forest models to predict the 15-minute ahead closing price of month ahead gas futures

Karolinska Institute — **Stockholm, Sweden**
Research Assistant — Aug. 2019 – Apr. 2021

- Developed a deep learning model to differentiate benign from malignant ovarian tumors, with specificity and sensitivity on par with an expert ultrasound examiner

TEACHING

Stanford University — **Stanford, California**
Course Assistant: Machine Learning (CS 229) — Jun. 2022 – Aug. 2022

- Topics covered: Supervised learning (deep learning), unsupervised learning, reinforcement learning

Course Assistant: Partial Differential Equations (MATH 220) — Sep. 2022 – Dec. 2022
Course Assistant: Applied Data Science (CME 218) — Sep. 2023 – Dec. 2023

- Mentoring graduate students working on machine learning projects

PUBLICATIONS

Elliot L. Epstein∗, Daniel Y. Fu∗, Eric Nguyen, Armin W. Thomas, Michael Zhang, Tri Dao, Atri Rudra, and Christopher Re. Simple Hardware-Efficient Long Convolutions for Sequence Modeling
In *ICML: Fortieth International Conference On Machine Learning,* July 2023
In *Mathematical and Empirical Understanding of Foundation Models workshop at ICLR,* 2023

F Christiansen, **E L Epstein**, E Smedberg, M Åkerlund, K Smith, E Epstein. Ultrasound image analysis using deep neural networks for discriminating between benign and malignant ovarian tumors: comparison with expert subjective assessment
In *Ultrasound Obstet Gynecol,* 2021

SKILLS

Technical (in order of proficiency)**:** Python (NumPy, PyTorch, Jax, TensorFlow, Keras, LangChain, pandas, Flask, Gym, Horovod), C++, C, MATLAB, Latex, Linux, GitHub, Bloomberg Terminal, GCP, Assembly, AWS, Docker, R